

Applicants invention has been discussed is previously filed amendments with the following comments being made in light of the present patent Office Action as well as the above amendments.

Claims 18-19 have been rejected under 35 U.S.C. ¶ 102 as anticipated by Japanese Patent JP 7-20050 for the reasons indicated at item 2 on page 2 of the Patent Office Action. Claims 20-21 and 22-25 have been rejected under 35 U.S.C. ¶ 103 as unpatentable over JP '050 in view of Kliman, U.S. Patent No. 5,117,553 for the reasons indicated at item 4 on page 4 of the Patent Office Action. Claims 26 and 27 have objected to as dependent upon a rejected base claim but allowable if re-written in independent form.

In response to these rejections, applicants have amended independent claims 18 and 19 to specifically indicate that the permanent magnets are embedded in plural permanent magnetic insertion holes to provide alternating reversed polarity.

The Japanese Patent '050, has permanent magnets with the same polarity and further, there are no auxillary magnetic pole portions formed between the permanent magnets as is specifically claimed in independent claims 18 and 19. The portion of the '050 patent corresponding to the auxilliary magnetic pole of the present invention is formed, in the Japanese Patent, as the main pole.

As a result, there is no solution to the problem of the required moderation in the change of the magnetic flux density distribution between the permanent magnet and the auxilliary magnetic pole portion. Therefore, applicants present invention is not an obvious variation of the Japanese Patent '050 in light of the amended claim

structure of each of the independent claims 18 and 19 wherein the permanent magnets are embedded in the magnetic insertion holes in order to provide an alternating reversed polarity in addition to auxilliary pole portion formed between the permanent magnets.

Claims 26 and 27 have been amended to include the subject matter of original claims 18 and 19 to comply with the requirements for allowance of claims 26 and 27 in independent form.

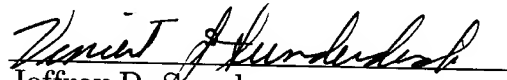
The secondary reference to Kliman, U.S. Patent No. 5,117,553, even accepting the statement of the rejection for the showing of the reference, adds nothing toward meeting the claim limitations of independent claims 18 and 19 from which claims 20-21 and 22-25 depend, contain all the limitations thereof. No obvious modification of the basic Japanese reference would provide for the auxilliary magnetic pole portions to be positioned between the permanent magnet or for the reverse alternating polarity defined by amended independent claims 18 and 19.

Therefore, in view of the distinguishing features between the claimed invention and the reference which features not shown or disclosed or made obvious by the references or there combination, applicants respectfully request that this application containing Claims 18-27 be allowed and be passed to issues.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #381NP/43816CO).

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Vincent J. Sunderdick", is written over a horizontal line.

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VERSION WITH MARKINGS TO SHOW CHANGES

18. (Twice Amended) A permanent magnet electric rotating machine comprising:

a stator; and

a rotor arranged at a side of an inner periphery of said stator with a rotation air gap;

said rotor having plural permanent magnet insertion holes arranged circumferentially in a ring-shaped arrangement, permanent magnets embedded in said plural permanent magnet insertion holes to provide a reversed polarity alternatively, and auxiliary magnetic pole portions provided between two adjacent plural permanent magnets, wherein

a magnetic air gap is provided in both sides of a peripheral direction of said plural permanent magnets,

thereby a change in a magnetic flux density between said plural permanent magnets and said auxiliary magnetic pole portions is formed smoothly and a cogging torque is restrained.

19. (Twice Amended) A permanent magnet electric rotating machine comprising:

a stator; and

a rotor arranged at a side of an inner periphery of said stator with a rotation air gap;

said rotor having plural permanent magnet insertion holes arranged circumferentially in a ring-shaped arrangement, permanent magnets embedded in said plural permanent magnet insertion holes to provide a reversed polarity alternatively, auxiliary magnetic pole portions provided between two adjacent plural permanent magnets, and magnetic pole piece portions arranged between said plural permanent magnets and said stator, wherein

a magnetic air gap is provided between said auxiliary magnetic pole portions and said magnetic pole piece portions,

thereby a change in a magnetic flux density between said plural permanent magnets and said auxiliary magnetic pole portion is formed smoothly and a cogging torque is restrained.

26. (Amended) [A permanent magnet electric rotating machine according to claim 18,] A permanent magnet electric rotating machine comprising:

a stator; and

a rotor arranged at a side of an inner periphery of said stator with a rotation air gap;

said rotor having plural permanent magnet insertion holes arranged circumferentially in a ring-shaped arrangement, permanent magnets embedded in said plural permanent magnet insertion holes, and auxiliary magnetic pole portions provided between two adjacent plural permanent magnets, wherein

a magnetic air gap is provided in both sides of a peripheral direction of said plural permanent magnets,

thereby a change in a magnetic flux density between said plural permanent magnets and said auxiliary magnetic pole portions is formed smoothly and a cogging torque is restrained

wherein each of said plural permanent magnets extends substantially the entire axial length of said rotor.

27. (Amended) [A permanent magnet electric rotating machine according to claim 19,] A permanent magnet electric rotating machine comprising:

a stator; and

a rotor arranged at a side of an inner periphery of said stator with a rotation air gap;

said rotor having plural permanent magnet insertion holes arranged circumferentially in a ring-shaped arrangement, permanent magnets embedded in said plural permanent magnet insertion holes, auxiliary magnetic pole portions provided between two adjacent plural permanent magnets, and magnetic pole piece portions arranged between said plural permanent magnets and said stator, wherein

a magnetic air gap is provided between said auxiliary magnetic pole portions and said magnetic pole piece portions,

wherein each of said plural permanent magnets extends substantially the entire axial length of said rotor;

thereby a change in a magnetic flux density between said plural permanent magnets and said auxiliary magnetic pole portion is formed smoothly and a cogging torque is restrained.